TEST ON SEVEN QC TOOLS - APPLICATION LEVEL

1. Design a checksheet to collect data on the vehicles passing by a point on the road. Information is desired on a daily basis regarding the type of vehicle during every half hour time period.

2. Make a Pareto diagram of the following data pertaining to the type of vehicle involved and number of accidents reported, in all Police stations in Calicut city, during 2002. What can you identify from the data?

Pedestrian	35
Two wheeler	68
Autorickshaw	186
Car	27
Mini truck	14
Bus	419
Lorry	42
Trailer truck	4

3. A consumer organization tested 38 motorcycles for mileage, and obtained the following results:
51.3, 51.5, 53.8, 50.6, 50.2, 50.6, 52.8, 52.9, 50.7, 51.8, 51.3, 51.4, 51.6, 51.9, 52.3, 52.9, 52.4, 50.7, 53.3, 52.9, 54.0, 51.7, 52.7, 50.6, 50.1, 50.1, 50.6, 50.5, 50.0, 52.4, 53.6, 51.8, 50.6, 51.0, 51.0, 52.5, 52.0, 54.6
Prepare a histogram of the data and draw conclusions, if the manufacturer claims a mileage of 50kmpl.

4. Prepare a Cause and Effect diagram for "Traffic accident". Identify at least 20 causes.

5. A motor cycle was driven with various rear tyre pressures and the mileage determined as below:

Pressure	38	43	40	37	45	42	44	36	41	39
Mileage	49	48	50	49	48	48	49	49	48	49

Plot a scatter diagram and comment on the relationship between variables.

6. Identify at least five ways in which you can stratify data pertaining to accidents.

7. A high-voltage supply power supply should have a nominal output voltage of 440V. A sample of four units is selected each day and tested for process control purposes. The data shown below give the difference between the observed reading on each unit and the nominal voltage times ten; that is x_i = (observed voltage on unit i – 440).

Sample number	x_1	x_2	x_3	x_4
1	6	9	10	15
2	10	4	6	11
3	7	8	10	5
4	8	9	6	13
5	9	10	7	13
6	12	11	10	10
7	16	10	8	9
8	7	5	10	4
9	9	7	8	12
10	15	16	10	13
11	8	12	14	16
12	6	13	9	11
13	16	9	13	15
14	7	13	10	12
15	11	7	10	16
16	15	10	11	14
17	9	8	12	10
18	15	7	10	11
19	8	6	9	12
20	14	15	12	16

Set up xbar and R charts on this process. Is the process in statistical control?